

We claim:

1. A thermal printing assembly comprised of a first flexible section, wherein: said first flexible section is comprised of a first front side and a first back side, wherein: said first front side has a Sheffield smoothness of less than about 50 Sheffield units, wherein said first front side is comprised of a multiplicity of first particles disposed therein, and wherein said first particles have a Knoop hardness of less than about 800.
2. The thermal printing assembly as recited in claim 1, further comprising a second flexible section joined to said first flexible section, and wherein said second flexible section is comprised of a thermally sensitive media selected from the group consisting of a thermal transfer ribbon and a direct thermal sensitive substrate.
3. The thermal printing assembly as recited in claim 2, wherein said thermally sensitive media is a thermal transfer ribbon comprised of an imaging side and a second back side and wherein said first front side of said first flexible section is congruent with said second back side of said thermal transfer ribbon.
4. The thermal printing assembly as recited in claim 2, wherein said thermally sensitive media is a direct thermal sensitive substrate comprised of an imaging side and a second back side and wherein said first front side

of said first flexible section is congruent with said imaging side of said direct thermal sensitive substrate.

5. The thermal printing assembly as recited in claim 3, wherein at least about 90 weight percent of said first particles are smaller than about 100 microns.

6. The thermal printing assembly as recited in claim 3, wherein at least about 90 weight percent of said first particles are smaller than about 15 microns.

7. The thermal printing assembly as recited in claim 5, wherein said first particles have a Knoop hardness of less than about 500.

8. The thermal printing assembly as recited in claim 6, wherein said first particles have a Knoop hardness of less than about 150.

9. The thermal printing assembly as recited in claim 7, wherein at least about 100 of said first particles per square millimeter of said first front side are present on a surface of said first front side and are homogeneously distributed over said surface.

10. The thermal printing assembly as recited in claim 8, wherein at least about 1000 of said first particles per square millimeter of said first front side are present on said first front surface and are homogeneously distributed over said first front surface.

11. The thermal printing assembly as recited in claim 9, wherein said first front side has a Sheffield smoothness of less than about 30.
12. The thermal printing assembly as recited in claim 10, wherein said first front side has a Sheffield smoothness of less than about 10.
13. The thermal printing assembly as recited in claim 11, wherein said first flexible section has a thickness of less than about 500 microns.
14. The thermal printing assembly as recited in claim 13, wherein said first flexible section has a thickness of from about 100 to about 175 microns.
15. The thermal printing assembly as recited in claim 3, wherein said first flexible section is comprised of a flexible support.
16. The thermal printing assembly as recited in claim 15, wherein said flexible support is a flexible polymeric support comprised of polymeric material.
17. The thermal printing assembly as recited in claim 16, wherein said polymeric material is selected from the group consisting of poly(ethylene terephthalate), polypropylene, polyolefins, cellophane, polycarbonate, cellulose acetate, polyethylene, polyvinyl chloride, polystyrene, polyimide, polyvinylidene chloride, polyvinyl alcohol, fluoro-resin, chlorinated resin, ionomer, and mixtures thereof.
18. The printing assembly as recited in claim 15, wherein said flexible

support is a flexible paper.

19. The printing assembly as recited in claim 15, wherein said first front side of said flexible support of said first flexible section is coated with a first layer; said first layer is comprised of said multiplicity of first particles and a first binder wherein; said first front side has a Sheffield smoothness of less than about 50 Sheffield units, and wherein said first particles have a Knoop hardness of less than about 800.

20. The printing assembly as recited in claim 3, wherein said first particles are inorganic particles.

21. The printing assembly as recited in claim 20, wherein said inorganic particles are selected from the group consisting of calcium carbonate particles, mica particles, talc particles, clay particles, and mixtures thereof.

22. The printing assembly as recited in claim 3, wherein said first particles are organic particles.

23. The printing assembly as recited in claim 22, wherein said organic particles are selected from the group consisting of polystyrene particles, polymethylmethacrylate particles, poly (n-butyl acrylate) particles, polybutadiene particles, poly (divinylbenzene) particles, cellulose acetate particles, and mixtures thereof.

24. The printing assembly as recited in claim 3, wherein said first particles

comprise inorganic particles and organic particles.

25. The printing assembly as recited in claim 3, wherein said first flexible section is comprised of opacification particles with a refractive index greater than 1.4.

26. The printing assembly as recited in claim 1, further comprising a second flexible section, wherein said second flexible section is joined to said first flexible section, and wherein said second flexible section is comprised of a second front side, a second back side, wherein: said second front side has a Sheffield smoothness of less than about 40 Sheffield units, wherein said second front side is comprised of a multiplicity of second particles disposed therein, and wherein said second particles have a Knoop hardness of less than about 700.

27. The printing assembly as recited in claim 3, wherein said first flexible section is comprised of a synthetic paper.

28. The printing assembly as recited in claim 27, wherein said synthetic paper is a clay modified polypropylene synthetic paper.

29. The printing assembly as recited in claim 27, wherein said synthetic paper is an oriented polypropylene synthetic paper.

30. The printing assembly as recited in claim 27, wherein said synthetic paper is a polyethylene based synthetic paper.

31. The printing assembly as recited in claim 28, wherein said synthetic paper has a Sheffield smoothness of less than about 50.

32. The printing assembly as recited in claim 1, wherein said first back side is comprised of a multiplicity of second particles disposed therein, and wherein said second particles have a Knoop hardness of less than about 800.

33. The printing assembly as recited in claim 32, wherein said first particles have an average particle size that differs from the average particles size of said second particles.

34. The printing assembly as recited in claim 32, wherein said first particles have a chemical composition that differs from the chemical composition of said second particles.

35. The printing assembly as recited in claim 3, wherein said first flexible section is joined to said second flexible section by splicing tape.

36. The printing assembly as recited in claim 26 further comprising a third flexible section joined to said second flexible section, and wherein said third flexible section is comprised of a thermally sensitive media selected from the group consisting of a thermal transfer ribbon and a direct thermal sensitive substrate.

37. The thermal printing assembly as recited in claim 36, wherein said thermally sensitive media is a thermal transfer ribbon comprised of an

imaging side and a third backside and wherein said first front side of said first flexible section is congruent with said third back side of said thermal transfer ribbon.

38. A thermal printing assembly as recited in claim 2, further comprising a core, wherein said first flexible section is joined to said core such that said first flexible section is proximal to said core and said second section is distal to said core.

39. A thermal printing assembly as recited in claim 2, further comprising a core, wherein said second flexible section is joined to said core such that said second flexible section is proximal to said core and said first section is distal to said core.

40. A thermal printing assembly comprised of at least three flexible sections, wherein each said flexible section has a Sheffield smoothness of less than about 50 Sheffield units, wherein

- (a) at least one of the flexible sections is comprised of a thermal transfer ribbon, thus forming a thermal transfer ribbon section; and
- (b) at least one of the flexible sections is comprised of a multiplicity of particles disposed therein, thus forming a particulate flexible section, said particles having a Knoop hardness of less than about 800,
- (c) wherein said thermal transfer ribbon section is attached to said

particulate flexible section.

41. A thermal printing assembly comprised of at least three flexible sections, wherein each said flexible section has a Sheffield smoothness of less than about 50 Sheffield units, wherein

(a) at least one of the flexible sections is comprised of a direct thermal sensitive substrate, thus forming a direct thermal substrate section;
and

(b) at least one of the flexible sections is comprised of a multiplicity of particles disposed therein, thus forming a particulate flexible section, said particles having a Knoop hardness of less than about 800,

(c) wherein said direct thermal substrate section is attached to said particulate flexible section.

42. A thermal printing assembly comprised of a first flexible section, wherein: said first flexible section is comprised of a first front side, and a first back side, wherein said first front side is comprised of a multiplicity of first particles disposed therein, wherein said first particles have a Knoop hardness of less than about 800, wherein said first flexible section has a thickness of less than about 500 microns, and wherein at least about 100 of said first particles per square millimeter of said first front side are present on a surface of said first front side and are homogeneously distributed over

said surface.

43. The thermal printing assembly as recited in claim 42, further comprising a second flexible section joined to said first flexible section, and wherein said second flexible section is comprised of a thermally sensitive media selected from the group consisting of a thermal transfer ribbon and a direct thermal sensitive substrate.

44. The thermal printing assembly as recited in claim 43, wherein said thermally sensitive media is a thermal transfer ribbon comprised of an imaging side and a second back side and wherein said first front side of said first flexible section is congruent with said second back side of said thermal transfer ribbon.

45. The thermal printing assembly as recited in claim 44, wherein at least about 90 weight percent of said first particles are smaller than about 100 microns.

46. The thermal printing assembly as recited in claim 44, wherein at least about 90 weight percent of said first particles are smaller than about 15 microns.